TMF

November 1989

THE MAC FLYER - For Greater Safety in MAC Air Operations

The 375th AAW . . . page 16

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THE MAC FLYER—For Greater Safety in MAC Air Operations

November 1989 MACSP 127-5 VOL XXXVI NO. 11

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The MAC Flyer is published by the Director of Safety, Military Airlift Command. The contents are informative and not regulatory or directive. Names of people and places in mishap stories are representative and not necessarily of the aircraft or equipment involved. Information in any article may not be construed as incriminating under Article 31, UCMJ.

Contributions, comments, and criticisms are welcomed. Write: *The MAC Flyer*, HQ MAC/IGFE, Scott AFB, IL 62225-5101. Or call Autovon: 576-5534/5543 or commercial: (618) 256-5534/5543. The editors reserve the right to make editorial changes in manuscripts which they believe will improve the material without altering the author's intended meaning.

Subscriptions are available from: The Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Changes of address for subscription mailing should be sent to the GPO. Give both old and new address, including zip codes. USAF Active and Air Reserve Forces units should establish magazine requirements through the OPR (HQ MAC/IGFE). Other U. S. Military units should consult administrative directives. *The MAC Flyer* is published at an approximate ratio of one magazine for every five MAC crewmembers, and one for every twenty MAC support personnel. Distribution: X. OPR: HQ MAC/IGFE ISSN 0094-788X

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The MAC Inspector General Speaks on Safety!

(Editor's Comments: Brig. Gen. James L. Cole, Jr, assumed duties as the Military Airlift Command Inspector General in July 1989. Prior to this assignment, General Cole served as the Assistant for Joint Matters in the Joint Staff/JCS. General Cole has held a variety of positions such as a faculty member of the USAF Academy, commander of 53d Military Airlift Squadron, Norton Air Force Base, California; vice commander of 438th Military Airlift Wing, McGuire AFB, New Jersey; and commander of the 89th Military Airlift Wing, Andrews Air Force Base, Maryland.

General Cole is a command pilot with over 6,000 flying hours and a military parachutist.)

TMF—General Cole, would you please tell us a little about your flying background.

General Cole—My background is mostly in special operations and strategic airlift. I have 1,000 hours of AC-47 time and another 700 in the C-47. I was also an IP in the 1st Special Operations Wing several years ago. I have approximately 3,000 hours in the C-141; was a flight examiner, and flew airdrop as well as SOLL I and SOLL II.

TMF—Were there any specific events in your career which helped you form your present safety philosophy?

General Cole—Yes. Training for going to war and my actual combat experience convinced me that every crewmember must strive to be the absolute best, across the board; and that includes safety. The penalties for being anything less are very severe.

"If the commander *thinks, talks,* and *practices* safety, others will follow that example."

***TMF*—As a previous commander, how do you view the commander's role in safety?**

General Cole—The commander is the number one safety officer in the unit and, if he or she does it right, everyone in that unit will reflect his or her emphasis on safety. If the commander *thinks, talks,* and *practices* safety, others will follow that example.

***TMF*—What do you think are our biggest assets and, conversely, our biggest obstacles in mishap prevention?**

General Cole—There is only one answer to both questions. PEOPLE! People can prevent mishaps most of the time; but unfortunately, it's also people who usually cause mishaps, most of the time. Almost all (at least 88 percent) of MAC's Class A and Class B mishaps over the past four years were caused by human factors. During fiscal year 1989, all five Class A mishaps involved human factors. We all need to strive to improve human safety awareness and performance. The result will be a reduction in mishaps.

***TMF*—Many crewmembers feel there is a conflict between "moving the mission" and doing the job safely. How do you view that perception?**

General Cole—The words should actually read "moving the mission, *safely,*" with the emphasis on the word "safely." There should be no conflict. I expect aircraft commanders to make those tough calls and I don't believe anyone should be trying to push aircraft commanders into doing anything unsafe.

***TMF*—Do you think the current budget constraints and reduced flying hours adversely affect crewmembers' continued proficiency and, if so, do you have any suggestions to remedy the problem?**

General Cole—Yes, I do, on both counts. We all have to redirect our efforts to wring the maximum benefit out of every flight hour. That means being well prepared every time we fly and capitalizing on every training opportunity.

***TMF*—In light of current efforts in pilot retention, where do you see us headed on this issue?**

General Cole—I hope we can convince enough of the *right* people to stay with us. We have a very important job—guaranteeing our National Security, and that takes very good people. The entire nation, as well as the Air Force, is facing a shortage of trained pilots and this problem will carry into the next century. The Air Force must compete effectively for the available talent in both recruitment and retention. We must create an Air Force environment which will encourage the right people to stay with us.

***TMF*—Safety is vital to every commander. What is your advice to commanders in developing and running their safety programs?**

General Cole—I'd tell them to get personally involved, not only to explain their philosophy on safety but to also practice it—and make sure others do. People will follow their lead.

***TMF*—What will be the overall thrust of your safety efforts as MAC's Inspector General?**

General Cole—Emphasize proficiency, professionalism, and pride—*across the board—in all that we do.*

***TMF*—Thank you, Sir.** ✈

A Victim of Circumstance

By TSgt. Elmer R. Leonhardt
118 MSS/RS, Tennessee ANG

A1C James "Rabid" Rabideaux squinted into the glare of the bright artificial light created by the NF-2 light carts scattered the entire length of the flightline. He gritted his teeth as the rigid framed MJ-1 bomb-lift truck bounced crazily down the steel-planked aircraft parking ramp. Rabid knew he was driving way too fast, but there seemed to be some sort of big push going on.

He rubbed his sore eyes and tried to wish away the dull headache he had suffered since reporting for work. He simply didn't know how he was going to stand six more hours on the 12-hour "B" shift. He regretted having consumed all that beer before coming to work. He hadn't thought it would be a problem since his crew had been fortunate enough to have pulled the alert shack duty. Normally it was easy, even getting the chance to sleep in air conditioned quarters for a change. Something went wrong this evening; they had been busy since reporting for work. The mission had changed, requiring most of the alert aircraft to have their weapon loads reconfigured.

Rabid literally skidded to a halt on the slippery PSP (Perforated Steel Planking) in front of the F-100D (tail # 55097) parked on B-1. Carelessly throwing the chock beneath the wheel of the vehicle, Rabid looked around impatiently. "Where is that '#$'## crew of mine? We ain't got all day!" Not waiting for a crew chief or checklist, he began pulling the panels off the aircraft, exposing the four 20MM cannons laying upside down in the lower nose. Rabid knew a stray-voltage check was needed so, to save time, he unscrewed the cannon plugs providing power to the guns' firing pins. He disconnected three of the four plugs and was reaching for the last one when he was interrupted by a shout. Looking up he saw, with great dismay, that his MJ-1 had vibrated itself loose from the improperly placed chock and was rolling merrily toward the next revetment. *Now* he knew why he was supposed to shut the engine off. Screaming "Oh, NO!" Rabid ran to reclaim his wayward vehicle. The rest of the crew was just walking up and witnessed the spectacle. "Smooth move X-lax" his crew chief crudely admonished. "Enough load-eo practice already; let's get this bird loaded, we've got a bunch of planes to do yet and not enough time to do them." Forgetting about the fourth cannon plug yet to be undone, Rabid mounted the MJ-1 and, as he drove off, shouted over his shoulder that the guns were ready for stray voltage check.

Sgt. Paige sat hunched over in the flightline snack bar. He stared forlornly at the dead bug floating in his cold drink. He was feeling terribly sorry for himself. I always seem to be a victim of circumstance, he thought glumly. I didn't ask to be assigned to Vietnam. If old Joe hadn't gotten hurt at MacDill, I would still be there and he would be

1989 MAC FLIGHT SAFETY WRITING CONTEST
HONORABLE MENTION

here. I didn't ask for this stupid Egress Mechanic Job, and I SURE didn't ask to be chewed out by Sarge this morning! After all, it wasn't my fault I dropped that test set. It just slipped out of my hand. Standing up to go to work, he looked one last time at the fly floating in his cup. He tossed it into the trash container and thought, yep, just like that poor fly, I'm a victim of circumstance. He carefully grabbed his equipment and trudged out to revetment D-1.

He settled into the cockpit of the aircraft in D-1, and continued to daydream about his personal problems rather than concerning himself with the job he had been sent to do. Meanwhile back at B-1, the situation had gotten worse. The bomb dump misread the "frag" order and delivered incorrect fuses. A gun camera crew was standing by waiting to perform a system check on a previous writeup. The decision was made to allow the gun camera crew to complete their check while the proper fuses were obtained. The weapons crew chief, Sgt. Smith, angrily climbed down from 55-097 to allow the camera technician access to the cockpit.

A sudden crescendo of noise followed by a blast of heat and grit-filled wind erupted as two alert aircraft hastily taxied by in response to a call for emergency air support. The two planes turned left out of "B" row, hosing down B-1 with heat, exhaust fumes, noise, and debris. Sergeant Smith wiped the sweat and grime from his eyes as he pulled a smudged piece of paper from his pocket—a list showing aircraft not yet reconfigured. Glancing at his watch, he cursed the long list of tail numbers as well as the delays that had piled up in last few minutes.

The gun camera technician, sensing the urgent mood of the situation, passed a cursory glance over the position of cockpit switches. He then depressed the trigger to the first detent, setting the gun camera in motion. He had a favorite game he liked to play; when squeezing the trigger, he always depressed it to the second detent which fires the guns and, for just a second or two, pretended he was engaged in aerial combat, firing at an enemy MIG. When he pressed the trigger to the second detent this time, it altered his life forever. Events unfolded before his eyes as if in slow motion. At first, his brain didn't even fully comprehend what had happened.

There was a terribly loud RAT-A-TAT-TAT, a tremendous vibration of the whole machine, and the acrid smell of gun powder. A deafening silence followed!

Sergeant Paige finally snapped out of his daydreaming and started checking the ejection seat of the aircraft parked on D-1. He twisted around and leaned to the left; a move which saved his life. For a split second he heard a loud noise, then, quicker than he could understand, the world seemed to explode behind him and he was slammed into unconsciousness.

Sergeant Smith prayed he was daydreaming as he watched the action. He had glanced back at 55-097 to see if the camera technician had finished his work. Just as he looked back, the nose of the aircraft seemed to explode in smoke and noise as three shells erupted from the right in-board gun. The first two rounds struck inside the empty C-1 revetment directly across from B-1. The recoil caused the aircraft nose to rise slightly, causing the third round to impact the very top of the revetment. The 20MM high explosive incendiary shell exploded and ripped off a chunk of metal from the steel. The resultant shrapnel sprayed the inside of D-1, the largest chunk impacting the aircraft Sergeant Paige was sitting in, striking just aft of the cockpit. For him the war was over. Hot steel ripped into his neck and jaw. A large piece of plexiglass from the canopy imbedded itself in his skull. He slumped in the seat, torn, bleeding, and permanently disfigured . . . once again a victim of circumstance.

Moments after the firing, the silence was broken by shouts of terror and confused commands. Days turned into weeks as official inquiries were completed and volumes of paperwork filled out. Sergeant Paige spent months in hospitals, suffering painful operations. Several people were demoted and/or lost jobs. All victims of circumstance—or were they?

The entire base had a real attitude problem. The attitude was "get the job done, no matter what." It was common practice to wink at safety violations, as long as the job was done. People on base longer than six months talked about the safety technician they had gotten fired by performing a work slowdown. The safety individual wouldn't allow any corner-cutting or cheating on the checklists. The "slowdown" was nothing more than taking the extra time required to do the job right, safely, and by-the-book. However, the squadron's attitude about safety was so lax, it actually allowed a man to be fired because he was doing his job. A lot of personal character had come into play on this base. The "laissez-faire" Rabid, who flitted about doing his job in whatever manner suited him, was a prime example. His apparent drinking problem and his generally bad Air Force attitude showed in his job performance. He didn't concern himself with rules, regulations, or checklists.

The uptight Sergeant Smith, whose big concern didn't seem to be safety or professionalism but rather looking at the clock and getting "X" number of

aircraft loaded and marked off his sheet, was another example. In fact, he worried so much about numbers he rarely concerned himself with checklists. He had been one of the chief instigators of the infamous work slowdown the previous year. He rarely did more than a token check of his subordinates' work and, as long as the job got done, didn't worry too much about performance. He usually took pride in doing a good walkaround check of the aircraft, although he didn't actually use a checklist as he should have. Today, with the heat, noise and stress of a "surge" operation, he had failed to do his informal walkaround and, consequently, missed the connected plug.

How about our fanciful gun camera technician? He dreamed of dog fights and aerobatics and, in the process, shot up one of his own airmen and severely damaged a valuable combat resource. Had he not been dreaming of dog fights and letting the pressures of a surge force him into complacency, he would have noticed the gun mode switch in the Guns/Cameras position rather than Camera only. Finally, poor, glum, depressed Sergeant Paige, was at least innocent of doing anything wrong. Of course, had he done his job instead of wasting valuable time daydreaming, he might have been out of the aircraft on D-1 when the accident occurred.

When we look at the overall picture, we realize Sergeant Paige wasn't really a victim of circumstance; he was a victim of an entire situation and attitude problem. He had done nothing to cause the accident he was involved in, but was a reflection of the overall base attitude. Many people on base were busy feeling sorry for themselves. A lot of people felt they were victims of circumstance by being in Vietnam. A lot of them felt they were dealt with unfairly by their supervisors.

One final piece of the puzzle remained. How did the guns on 55-097 manage to have rounds in their breeches with all the stringent arm/dearm requirements? Investigators revealed the following scenario: 55-097 had returned from a sortie with a cell of three other aircraft. They had taxied to the end-of-the-runway (EOR) crew to be dearmed when the base perimeter had come under attack. The EOR crew scurried to the bunkers and the pilots rushed to get the aircraft out of ground fire. Even as 55-097's engine was winding down, a towbar was attached and the aircraft towed to B-1, replacing an aircraft on the alert line which had broken down. In the urgency to get the job done and reconfigure the aircraft armaments' loads, 55-097 had never had its guns safed. The entire situation had been a (comedy?) of errors. It should have never happpened, you say? I agree. As a young AlC I wasn't privy to the details of what transpired, so for the sake of this narrative, I have taken some academic license. The situation actually happened; all the facts are not real, but having been there, I know how we can allow ourselves to be caught up in a situation where a series of events, each one in itself perhaps not lethal, add up to cause a catastrophe.

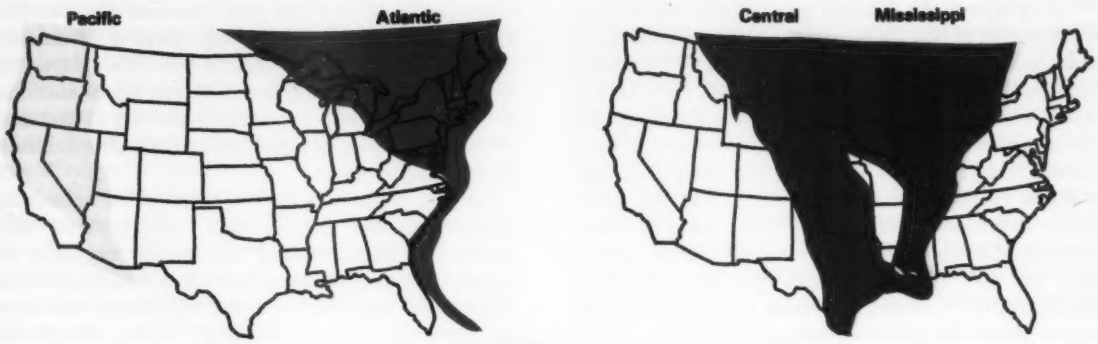
The entire base was under a combat mindset of "get the job done, no matter what." Individuals under the stress of long hours and hard work had developed one of two attitudes—either "I don't care what happens, why am I here?" or "Press on, get squares filled, don't slow down to do it right . . . just do it!" Aircrews added to the problem and probably didn't realize it. A bomb load crew has a tremendous responsibility and, collectively, have a lot on their minds as they get the bombs out. It's distracting when things are going badly to see pilots standing in front of aircraft, impatiently looking at watches, while one is trying his best, under difficult conditions, to get the job done.

Heat, cold, sweat, dirt, overloaded schedules, impatience and indifference, aggravation with mechanical malfunctions, emergency requests for support; these are all conditions that we as mechanics and aircrew members, can and will face as we strive to perform our everyday jobs. *Don't let circumstances take control; control them.*

This episode demonstrates how a series of events can come together to produce a catastrophe. Let's not allow ourselves to be victims of circumstance. Think safe, work safe, be safe, and if you are an aircrew member . . . fly safe. ★

TSgt. Elmer R. Leonhardt, a previous Contest Winner, is currently a Recruiter with the Tennessee ANG. His past experience include eight years as a Weapons Mechanic, a tour in Vietnam as well as one in Thailand.

The Real Midnight Air Command—Birds



FLYWAYS

By Maj. Stephen E. Behr
Associate Editor

Each night they launch formation flights, not just three or four, but flights of thousands and sometimes millions. Yes, they're back in the sky again—feathered flyers are headed to their favorite TDY locations. Some of them are bound to be headed your way!

Most birds actually have two migration periods per year; the leisurely and concentrated fall migration, and a scattered, quicker spring migration. Fall migrations begin with arctic birds leaving their nesting areas in late June or early July (reaching a peak in September in northern states) and continuing thru December. The large concentration of birds during fall migration makes the movement noticeable, and more hazardous to MAC aircraft. One fall evening, researchers using special radar, counted 218,700 birds per hour passing over a South Carolina airport. The bird traffic was continuous for six hours. The spring migration is rarely noticed by veteran bird watchers and flight safety officers at bases where bird movements are monitored.

Many bird species migrate during darkness. For many years experts thought only smaller birds flew at night; current research indicates many large waterfowl also travel under cover of darkness.

When you see geese or cattle egrets (those large white birds that love to hang around airports) during the day, they are making local area flights, foraging for food. Large waterfowl head out cross country when the sun goes down and, when traveling at night, cruise from 800 feet to 1,600 feet AGL, (very close to traffic and radar pattern altitudes). Rarely do birds get above 7,000 feet AGL during migrations. Exceptions are avian aviators making overseas legs, such as crossing the Caribbean or Mediterranean Seas. When crossing large bodies of water, birds climb searching for tailwinds. Blackpoll warblers have been radar-tracked climbing to 21,000 feet off the east coast at the beginning of their 86-hour overwater flight.

Yes, birds travel a lot slower than most airport pattern traffic, only 25 to 30 MPH, but

when an eight-pound goose hits the leading edge of an aircraft doing 180 knots, the total impact force is 20,400 pounds. That's enough to put a large dent in the leading edge of most aircraft. Geese aren't the only large birds traveling under cover of darkness. Herons, cranes, and egrets make night sorties. Some have wing spans up to 55 inches and can weigh upwards of 23 pounds. When one of these hits, impact forces can exceed 40,000 psi. An Airbus A300 passing over New Delhi, India, at 4,000 feet struck a vulture. Post flight inspections, following an emergency landing, revealed damage to the nose, pressure bulkhead, and radar antenna. Such a collision between bird and aircraft shows the level of possible damage expected when collisions occur.

Not all collisions result with humans walking (or flying) away unscathed. The USAF has experienced many damaging birdstrikes where pilots didn't walk away. Most fatal mishaps involve fighter type aircraft, but large aircraft aren't exempt. A B-1B crashed following multiple birdstrikes during a low-level flight.

MAC is fortunate in that, having experienced damaging birdstrikes, none have been fatal—so far. How do we limit or reduce birdstrikes? Begin by avoiding areas of bird concentrations. AFR 127-15, *The Bird Strike Hazard Reduction Program*, describes bird watch condition codes broadcast to crews flying into or departing from affected fields. The codes used are: RED for most hazardous bird activity; YELLOW for moderate bird activity; and GREEN for normal activity. These codes should also describe where the bird hazard is located. Bird watch conditions are often broadcast on ATIS frequencies.

At Dover AFB, Del., during months when vast numbers of waterfowl and shore birds are in the vicinity, bird watch radar provides assistance to aircrews. Prior to Dover's bird season, the folks transmit a message giving frequencies and call signs to use in contacting bird watch radar. Look for messages posted at command posts, base ops, or unit "read files." MAC can't avoid flying into Dover, so the bird watch system helps avoid large and potentially dangerous flocks of birds. Other bases note their particular bird problems in *FLIP* planning documents.

A second way to reduce your chances of a birdstrike is to avoid flying low-level routes with high birdstrike rates or avoid periods when they are most active along the route. How do you find this information? Start by contacting your wing's flight safety folks. They should be familiar with bird hazards in your local area and low level routes used by your unit. If the low level route is "owned" by another unit, contact them for bird information and ask for the bird avoidance model graph (BAM graph). These graphs are provided by the Bird Aircraft Strike Hazard (BASH) team. They depict relative potential for having a birdstrike based on time of day, altitude, and month of the year. BAM graphs can help you mission plan to avoid birdstrikes.

Another way to reduce your chances of colliding with a feathered flyer is by avoiding their flight periods. Birds are most active three times a day during migrations: the hour before and after sunrise or sunset, and from two hours before to two hours after midnight. The late night flyers are usually large birds travelling longer distances.

Other protective measures include using external lighting, including strobe lights, to make your aircraft more conspicious to birds. Reducing airspeed within operational constraints, and ensuring windshield heat is operational can help. Painting eyes on aircraft engines only works to keep birds from roosting in them; once in flight, the eyes have proved ineffective in scaring birds.

One bird myth is that they don't fly in clouds. Wrong! They do fly in instrument conditions. The only problem under those conditions is that birds can't avoid obstacles, such as TV transmitter towers, as they normally would, and often thousands will die running into the same obstacle. The following day they may backtrack (so called reverse migration) to ensure they are still headed in the proper direction to reach their winter quarters.

Routes flown during major migrations are known as flyways and, in the United States, there are four. Birds appear to use natural features for navigating during their yearly journey. Flyways follow edges of mountain ranges, river valleys, and coastal plains. Most MAC and MAC-gained bases are located in these same areas.

So, if you've done your best to avoid birds but the inevitable occurs, get out a birdstrike work sheet and let the safety folks know what happened. Your report will build the knowledge base that the BASH team uses to help you avoid future avian encounters. ✯

Indecision—
The Key To Flexibility

When to stop for help.

"Doctors . . . hospitals . . . waiting rooms . . . needles. Who needs 'em?" muttered the visibly pale captain with the raspy voice, slouched in the waiting room chair next to Capt. Brad "Mac" MacKenzie. "They're a waste of a healthy flyer's time in my book." How many times have I heard that, mused Mac, as he waited to see the flight surgeon to finish up his annual physical. His mind drifted off lazily, hoping his daydreaming would not soon be interrupted. Why are flyers so notorious for shunning medical help when they really need it? Is it the tough image we're trying so desperately to preserve, a not-so-real dislike (or hatred) for the flight doc, the real fear of loss of flight status and pay, or just an embarrassing lack of regular physical fitness? As Mac's intrigue with these profound revelations deepened, so did his state of unconscious daydreaming. It brought to mind numerous incidents where timely medical help could have made a real difference.

One such incident involved a somewhat sickly-looking young copilot. One morning, while transiting one of the more exotic places TDY people frequent, the copilot informed the aircraft commander he felt ill, but not bad enough to see a flight surgeon. What he didn't tell the AC was that he had been violently ill most of the night. The copilot was operating in the "press on" mode and wanted to continue the mission. Upon reaching cruise altitude, his malady returned, and he once more became sick. Unable to perform his flight duties, he had to leave the seat. The AC was able to make an uneventful approach and landing, assisted by the scanner who moved to the copilot's seat. Pressing on, thought Mac, is the flyer's bitter-sweet requiem. It sets us apart from mere mortals and makes us special, but it can also be our own worst enemy.

Along with our ability to withstand pain and adversity, is our pride of physical prowess. Just as all GIs, when talked to after a poker game either "won" or "broke even," we are all in "good" physical condition—at least in our minds. Again, Mac's mind drifted off to an incident involving a flight engineer who came to the painful realization the 'ole bod was not in the shape it once was.

As the crewman depressurized the aircraft during descent, he noticed pain in both wrists and left foot, which persisted after landing. He talked to an Army flight surgeon at the en route stop and was allowed to continue to final destination for medical treatment. En route, he remained on oxygen for three hours which temporarily relieved his pain, but 45 minutes after taking his oxygen mask off, his symptoms returned. After landing, the crewmember was treated for Type Two aviation decompression sickness, a treatment involving two hours in a hyperbaric chamber, followed by 72 hours of DNIF, before returning to home station as a passenger. It seems the guy not only had a history of soreness in the joints during previous altitude chamber rides, but participated in strenuous physical exercise seven days prior to the flight.

Mac squirmed in his chair as the painful aftermath of the last squadron picnic crept into his groggy consciousness. He had, once again, learned the hard way that seldom-used muscles always hurt the worst a day or two after the annual squadron softball marathon. The pain had also reaffirmed his New Year's resolution for regular physical exercise rather than the intense sporadic type. The ankle Mac twisted on a late slide into third base hadn't even hurt much at the time. He, of course, had decided he didn't need it "looked at," and insisted on "walking it off." Mac again shifted uncomfortably in his chair, remembering the chewing-out he got from the doc on duty in the emergency room. He vowed to never again let pride, vanity, or "toughness" get in the way of sound judgement, and decided he probably wasn't the best judge to decide whether or not to visit the emergency room after his abrupt stop at third base.

As he drifted off again, Mac mused over the dilemma a SAC crew recently faced. They had just finished the air refueling portion of their training flight when the boom operator requested the mission be shortened because he felt ill and was experiencing chest pains, sweating, and dizziness. The pilot immediately terminated preparations for a nav leg, notified ARTCC of a medical problem, and obtained clearance direct to home station. The aircraft commander/IP considered diverting to the closest Air Force base, but the boom operator stated he didn't feel diverting was necessary *at this time.* Diversion soon became inadvisable due to nearness of home station where a flight surgeon and ambulance were waiting. Mac again stirred as the old addage of "indecision being the key to flexibility" crept into his consciousness. The boomer incident turned out okay; just another case of pain from muscle strain and inflammation caused by unaccustomed physical activity

(rowing) three days prior to the flight. Mac wondered if the outcome would have been as rosy had the boomer's condition been more serious. He also questioned the practicality of self-diagnosis and how capable any of us are of determining the seriousness of our own injuries. At the same time, how many of us, untrained in first aid, let alone medical diagnosis, could determine what to do if faced with a medical situation in flight. Do we land at the nearest patch of ground where there might be a doctor; pull over at the nearest military installation that has a flight surgeon; or just press on to destination? It might be worth some forethought and discussion with the flight doc before the situation comes up. Flexibility is good but not the kind resulting from indecision.

"Captain MacKenzie!" Mac started to an upright position and, as he regained his senses, realized the receptionist was inches from his face. Yes, it was his turn to see the doc. The "short" physical this year was indeed short but thorough. Mac, however, spent a little more time bending the flight surgeon's ear than most customers do. When he emerged from the doc's office, Mac was carrying a list— a list of worldwide flight medical clinics.

(Editor's Comments: In light of current budget cuts and base closures, we thought it might be helpful to include Mac's list. The list is not all-inclusive. Additionally, you may not be able to just drop your Galaxy into all of them without some prior coordination and detailed checking (such as: do they even have a runway?), but it does, at least, give you a good place to start. We've also listed four bases which have hyperbaric chambers to treat decompression sickness. The list, courtesy of USAF Medical Center Scott, F.S.O.) ★

AFA Colorado Springs, CO
Alconbury RAFB, UK
Altus AFB, OK
Anderson AFB, GU
Andrews AFB, MD
Ankara AB, TU
Aviano AB, IT
Barksdale AFB, LA
Beale AFB, CA
Bentwaters RAFB, UK
Bergstrom AFB, TX
Bitburg AB, GE
Blytheville AFB, AR
Brooks AFB, TX
Camp New Amsterdam AB, NL (Soesterberg)
Cannon AFB, NM
Carswell AFB, TX
Castle AFB, CA
Chanute AFB, IL
Charleston AFB, SC
Chicksands RAFB, UK
Clark AB, RP
Columbus AFB, MS
Comiso AB, IT
Davis Monthan AFB, AZ
Dover AFB, DE
Dyess AFB, TX
Edwards AFB, CA
Eglin AFB, FL
Eielson AFB, AK
Ellsworth AFB, SD
Elmendorf AFB, AK
England AFB, LA
F.E. Warren AFB, WY
Fairchild AFB, WA
Fairford RAFB, UK
Geilenkirchen AB, GE
George AFB, CA
Goodfellow AFB, TX
Grand Forks AFB, ND
Greenham Common RAFB, UK
Griffiss AFB, NY
Grissom AFB, IN
Hahn AB, GE
Hanscom AFB, MA
Hellenikon AB, GR
Hickam AFB, HI
Hill AFB, UT
Holloman AFB, NM
Homestead AFB, FL
Howard AFB, CZ
Hurlburt Field, FL
Incirlik AB, TU
Iraklion AS, GR
Izmir AS, TU
K.I. Sawyer AFB, MI
Kadena AB, JA
Keesler AFB, MS
Kelly AFB, TX
Kirtland AFB, NM
Kunsan AB, KO
Lackland AFB, TX
Lajes AB, AZ
Lakenheath RAFB, UK
Langley AFB, VA
Laughlin AFB, TX
Little Rock AFB, AR
Loring AFB, ME
Los Angeles AFS, CA
Lowry AFB, CO
Luke AFB, AZ
MacDill AFB, FL
Malmstrom AFB, MT
March AFB, CA
Mather AFB, CA
Maxwell AFB, AL
McChord AFB, WA
McClellan AFB, CA
McConnell AFB, KS
McGuire AFB, NJ
Minot AFB, ND
Misawa AB, JA
Moody AFB, GA
Mountain Home AFB, ID
Myrtle Beach AFB, SC
Nellis AFB, NV
Norton AFB, CA
Offutt AFB, NE
Osan AB, KO
Patrick AFB, FL
Pease AFB, NH
Pentagon, D.C.
Peterson AFB, CO
Plattsburg AFB, NY
Pope AFB, NC
Ramstein AB, GE
Randolph AFB, TX
Reese AFB, TX
Rhein-Main AB, GE
Robins AFB, GA
San Vito AB, IT (Brindisi)
Scott AFB, IL
Sembach AB, GE
Seymour Johnson AFB, NC
Shaw AFB, SC
Sheppard AFB, TX
Spangdahlem AB, GE
Taegu AB, KO
Tinker AFB, OK
Torrejon AB, SP
Travis AFB, CA
Tyndall AFB, FL
Upper Hayford RAFB, UK
Vance AFB, OK
Vandenberg AFB, CA
Whiteman AFB, MO
Wiesbaden AB, GE
Williams AFB, AZ
Wright-Patterson AFB, OH
Wurtsmith AFB, MI
Yokota AB, JA
Zaragoza AB, SP
Zweibrucken AB, GE

HYPERBARIC CHAMBER BASES
Brooks AFB, TX
George AFB, CA
Shaw AFB, SC
Wright-Patterson AFB, OH

Rules and Regulations Exist for a Reason

Every organization has at least one overzealous individual in the ranks. The reasons behind this compulsion are normally honorable and even laudatory. Unfortunately, the methods employed and, on occasion, the reasons behind this perceived loyalty to the organization, can be disappointing indeed.

FLIGHT HISTORY

At 1820 Mountain Standard Time, on 19 January 1988, Trans-Colorado Flight 2286 (TC-2286), a Fairchild Metro III, departed Stapleton International Airport Denver, Colo., with two flightcrew and 15 passengers on board. The flight was planned from Denver to Cortez, Colo., with a stop in Durango, Colo. This was a regularly scheduled commercial flight. The mission was originally scheduled to leave Denver at 1740 for the 72-minute flight to Durango, but was delayed by weather and the late arrival of the airplane from an earlier flight.

At 1900 hrs, Denver ARTCC asked TC-J2286 which approach they preferred. The Captain responded they would like the VOR/DME approach to Runway Two Zero. Denver ARTCC told the crew they could proceed direct to Durango's final approach

course at 11 DME, bypassing the IA and subsequent 11 DME ARC if they so desired. The Captain accepted.

At 1903 MST, Denver ARTCC cleared the flight to descend, at pilot's discretion, from their cruise altitude of 23,000 feet to 16,000 feet MSL. At 1910, Denver ARTCC cleared the flight to descend to 15,000 feet and the Captain acknowledged. Three minutes and twenty-eight seconds later, Denver told Flight 2286 to cross the Durango 023-degree radial 11-mile fix at or above 14,000 feet and cleared them for the approach. The published altitude for the 11-mile fix is 10,400 feet from the 11 DME ARC.

Passengers remembered hearing the announcement starting the initial descent to Durango and requesting they fasten their seatbelts. They consistently characterized the flight as uneventful until the final moments. They said the airplane leveled off briefly, then hit hard followed by an abrupt pitch up and an increase in engine power. They reported the airplane rolled several times laterally before hitting the ground and sliding to a stop about five miles from the airport.

The wreckage path extended about 1,000 feet on an approximate heading of 198 degrees. The airplane initially contacted several trees about six to eight feet below the top of a hill, flew over the top of the hill, and impacted the ground near the bottom of the opposite side. After striking the ground on the second impact, the aircraft slid about 300 feet along snow-covered terrain.

The aircraft was crushed from the nose to the first row of passenger seats. Survivors' injuries ranged from a fractured vertebrae to muscle strains. One survivor also sustained first degree frostbite of both feet.

At 2034 hrs, a local resident contacted Durango Central Dispatch and relayed that a man had just reported surviving a plane crash. The survivor had walked out of the woods to the residence. Five passengers, including a 23-month-old carried by another survivor, walked about one and one half miles across rugged terrain for a one and one half hour period to reach a highway. They then met a motorist who transported them until reaching a responding rescue vehicle.

The crash site was located at 2226 hrs. Rescue units from various local agencies, using snowmobiles, ambulances, ski patrol sleds, and a bulldozer, arrived at the site 48 minutes later. Rescuers found the crew and four of the ten passengers at the site. Rescue was hampered by snow, darkness, extreme cold, and the remote location of the site. Two additional passengers died during rescue, and one died a day later. Efforts continued for over an hour. The last survivor was transported from the scene at 0030 hrs.

ANALYSIS

There were no indications of preexisting defects in the airplane systems, powerplants, or airframe. Since the Captain had been communicating with air traffic control, in keeping with company procedures, the board concluded he was the pilot not flying the airplane. Evidence showed the crew had descended below the Minimum Descent Altitude (MDA), without ensuring ground clearance. The investigation team examined the approach and its execution to determine why the airplane descended below the published descent profile.

At 1915 hrs the flight was at an approximate altitude of 14,000 feet on the 023-degree radial at 11 DME, with a ground speed of 195 knots or 143 KIAS. Had the flight crew flown the approach as published, they would have flown the 11 DME arc for a distance enabling them to descend without difficulty from their altitude of 14,000 feet to reach 10,400 feet by the final approach course. The approach profile required a minimum altitude of 7,600 feet when crossing the 3 DME fix, after which a descent to the MDA of 7,200 feet was permissible. Had the crew flown the final approach course at the speed appropriate for that segment of the flight, about 135 KIAS, the resultant descent rate would have been 900 fpm (no wind). By contrast, Flight 2286 began the approach from 14,000 feet MSL. The ground speed ranged from 240 to 175 knots (180 to 142 KIAS) in the descent to 12,000 feet MSL and exceeded 190 knots (165 KIAS) almost to impact. The descent rate maintained throughout the approach was approximately 3,000 fpm. From the outset, the crew flew the approach at an altitude too high for safe execution. The difficulties created by excessive altitude were further complicated by the tailwind component which was 10 to 15 knots almost to the point of impact. The decision to fly a straight-in rather than the published approach, resulted in a descent rate more than three times the rate intended for the approach.

The Captain was known as a highly skilled pilot capable of making up for lost time to meet arrival schedules. The flight was approaching from the northeast, so flying the approach as published would have added as much as ten minutes to the flight. Since the flight was already behind schedule, the Captain apparently considered flying the 11-mile DME arc too time consuming.

Faced with a combination of low ceiling, tailwinds, and the high altitude from which the approach was initiated, why would the Captain allow the copilot to fly the approach? Furthermore, why

was the copilot unable to safely handle the approach, which was certainly challenging, but not impossible?

The airlines' chief pilot characterized the Captain as a good pilot, but criticized his tendency to rush. Two First Officers commented on the Captain's tendency to taxi at high speeds. His personnel file contained additional instances of suspect behavior. In one instance, the Captain personally refueled an airplane which was behind schedule, (in violation of the contract with the fueling company), because he believed there were no ground personnel immediately available. One day later, again in violation of company procedures, the Captain boarded a late passenger with one of the airplane's engines running.

On 11 February 1983, the Captain was involved in an aircraft mishap. The aircraft, a Cessna 182, was destroyed and one passenger received minor injuries. The Safety Board determined the probable factors involved in this mishap were the Captain's selection of the wrong runway, improper compensation for wind conditions, misjudging distance, and delaying a go-around. The FAA required a reexamination by an FAA inspector. This was successfully accomplished on 2 March 1983.

Records of the Colorado Motor Vehicles Division indicate that from March 1983 through January 1986, the Captain received five convictions for moving violations—one for speeding, two for improper yielding of the right of way, and two for disobeying a traffic signal or sign. Two violations involved traffic accidents.

The First Officer's career began in 1974 as a flight instructor. He held the position until 1980 when he became a First Officer with a commuter airline. The airline terminated him one year later because he demonstrated a lack of proficiency in his attempt to upgrade to captain. The First Officer then flew for five years as an instructor pilot in Colorado. In 1985 he moved to Alaska, where he was employed as a charter pilot and flight instructor. On 12 February 1986, he failed to perform satisfactorily on a proficiency check. The areas of difficulty involved ILS and nondirectional beacon (NDB) approaches. The First Officer satisfactorily completed the proficiency check on 18 March 1986; however, since instrument approaches were not reviewed, he was limited to VFR flight operations. In September 1986, he returned to Colorado, where, after nine months working several odd jobs, he was hired by Trans-Colorado Airlines.

Colorado records indicate the First officer was convicted in 1972 of one non-driving, alcohol-related offense; and in 1976 and 1983, of alcohol-related driving offenses. There are no records of further alcohol-related difficulties after 1983.

The First Officer had considerable experience, but his record indicated deficiencies in piloting abilities; particularly in instrument flight skills. Several years before the mishap, he'd failed to upgrade to captain because of poor performance in instrument approaches. Less than one year before the mishap, he'd failed a proficiency check, also due to poor performance on instrument approaches. During training with his employer, he continued to be deficient in instrument skills. The VOR/DME approach to runway 20 at Durango straight in from 14,000 feet at the 11 DME fix in IMC, required a high level of skill and ability which, by the evidence of past performance and the opinion of those who worked with him, the First Officer did not possess. Why would the Captain allow him to fly the approach?

Information provided to the Safety Board and confirmed by the pilots' post-mortum analysis indicated the Captain and a companion had done a "bag" of cocaine the night before the mishap. According to a representative of the Drug Enforcement Administration, the couple had used cocaine over a long period covering a good part of the night. Given the known stimulant effects of the drug, the fact that he was not at rest while using the drug, and the likelihood of insomnia following cocaine use, the Safety Board believed the Captain's drug abuse the night before impaired his abilities to either fly the aircraft or, monitor the First Officer's performance.

PROBABLE CAUSE

The National Transportation Safety Board determined the probable cause of this mishap was the First Officer's deficient flying and the Captain's ineffective monitoring of an unstabilized approach, resulting in a descent below the published descent profile. Contributing to the mishap was the degradation of the Captain's performance stemming from his cocaine use before the mishap.

APPLICATION TO MAC

We at *TMF* fully realize cocaine use is not epidemic among MAC aircrews. However, none of us have been away from the line long enough to have forgotten TDY evenings where the bottle to throttle rule may have been stretched. Throughout his career, the Captain demonstrated a cavalier attitude toward the need to adhere to rules and procedures. His relatively large number of traffic convictions was just one of many symptoms of this attitude. A crewmember, especially one overly fatigued, who puts mission schedule above safe flying practices, opens the door for disaster. ⚜

Adapted From *NTSB/AAR-89/01*

375th Aer

It's really the "aeromedi

Evac 655 onloading patients.

Student IP preflighting C-21A "Learjet."

By Maj. Stephen E. Behr
Associate Editor

Encircled by corn and soybean fields in southern Illinois, the 375th Aeromedical Airlift Wing is headquartered at Scott AFB along with the 932d Aeromedical Airlift Group (AFRES). Don't let the "aeromedical" fool you into thinking it's the wing's only mission. The 375th does a lot more, such as: operational support airlift (OSA); facility checking; a formal flying school; and, oh yes, support for a joint command and two major commands—USTRANSCOM, MAC, and AFCC.

As a former wing member, I was somewhat hesitant to write this article. Knowing *TMF* editors always undertake exhaustive research trips, I knew a story on the 375th would give me another chance to travel to far corners of the free world. While its headquarters is at Scott AFB, the 375th has 10 flying squadrons and 11 flying detachments strung out across the United States and overseas, in Japan and West Germany. With a wing this big, I'd need a 20-day TDY (at least) to conduct the necessary firsthand research, but our supervising editor would only allow 5 days at Scott—so it looks as though this will be a "short" tour of the 375th.

Five flying units are located here with the rest well distributed around the globe. Squadrons at Scott are the 11th Aeromedical Airlift Squadron, 57th Aeromedical Evacuation Squadron, 1375th Flying Training Squadron, 1401st Military Airlift Squadron, and 1467th Facility Checking Squadron. Geographically separated squadrons include the 1st Aeromedical Evacuation Squadron, Pope AFB, N.C.; 2d Aeromedical Evacuation Squadron, Rhein-Main AB, Germany; 9th Aeromedical Evacuation Squadron, Yokota AB, Japan; 1400th Military Airlift Squadron, Norton AFB, Calif.; and 1402d Military Airlift Squadron, Andrews AFB, Md. It's a big wing and the detachments have yet to be mentioned. Not just big, but busy as well, logging more than 80,000 flying hours a year with 106 aircraft.

Where to start gathering information was easy—my old home, Wing Safety, where Maj. Jay W. Bagley, Chief of Safety, and Capt. Lon M. Lease, Chief of Flight Safety, are busy folks. Major Bagley explained, the biggest challenge for the flight safety staff is communicating with geographically separated units. "Our wing has most of its units off station—getting the safety word out to them means lots of time spent on the phone. We also use crosstell letters to help keep the units informed. Our wing commander is very involved in safety and puts emphasis on unit commanders being safety officers at their units." Another challenge for 375 AAW flight safety folks is having to monitor five weapon systems: the C-9A Nightingale; C-12F Super King Air; C-21A Learjet; CT-39A Saberliner; and C-140A Jetstar. When fully manned, there is a flight safety officer for each mission area (or aircraft), although each officer must be familiar with all aircraft. Captain Lease, C-21A expert, is attached to the 1401 MAS and since he has C-140 experience, he is also the resident flight check expert.

Next stop on the short tour was with Col. Bobbie (Bob) L. Mitchell, Wing Commander. The colonel explained, "What makes the 375th unique is traceable in its history—the wing was created for aeromedical airlift. Our humani-

eromedical Airlift Wing

edical-operational support-facility checking-flying training airlift wing."

tarian mission spans the globe, just as MAC does. As MAC grew as a command, new missions such as OSA and flight check were added to the 375th. The diversity and dispersion of the wing is a challenge met by our high caliber people."

CONUS aeromedical airlift is performed by the 11th Aeromedical Airlift Squadron and 57th Aeromedical Evacuation Squadron. The 11th has pilots (aircraft experts) and the 57th has flight nurses and aeromedical technicians (patient care experts). Both groups are important to successful completion of each mission and how communications will be handled during emergencies. Lt. Col. Frederick G. Padgett, commander of the 11th stated, "It takes a real team effort to make an airevac mission run safely. The number of stops per day is a real challenge since the takeoffs and landings put us in the critical flight phase more often than most other airlifters. Our average mission makes six stops. When you add in weather delays, operations into congested airspace, and missions pushing crew duty day limits, fatigue becomes a factor impacting safe mission execution."

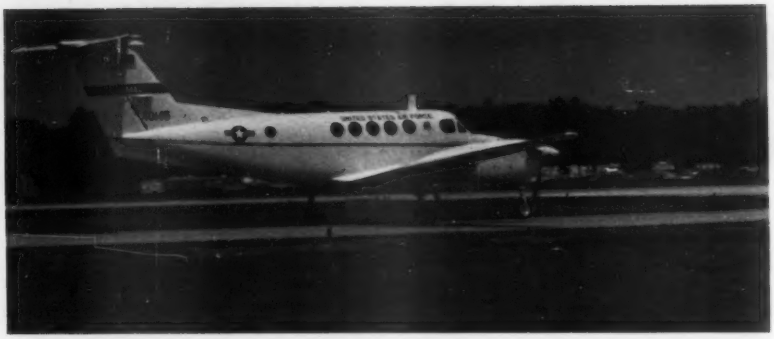
The 57 AES is commanded by Lt. Col. (Col. select) Stephen L. Partridge. The colonel began our meeting by stating, "We're airlifting patients, not cargo, and some are very ill. Flight nurses and med techs are responsible not only for patient care, but safety as well. Sometimes, patient needs require delaying a mission to ensure they will be medically ready to fly. The C-9 'Nightingale' is used for most airevacs in CONUS. For patients with medical emergencies requiring urgent movement, we try to use the nearest scheduled airevac mission; when one isn't close, we use C-12s, C-21s, C-130s, C-141s, or even C-5s if available. Patient

GLASCO folks maintaining one of the wing's sixty-nine C-21As.

A C-140A "Jetstar" used for navigational facility checking.

crew coordination is the key. Members of both squadrons attend a joint Aircrew Coordination Training (ACT) program before flying any missions. During ACT, pilots are exposed to patient care emergencies requiring them to coordinate their actions and responses to a life threatening crisis. Aeromedical evacuation crewmembers learn to communicate and coordinate actions during aircraft system emergencies. Part of each pre-mission crew briefing includes

Airevac arrival at Scott.



C-12F holding short for takeoff.

Maj. Jay W. Bagley, Chief of Safety.

condition and care requirements dictate the type of aircraft used." That's why MAC missions out in the system sometimes get diverted and become airevacs. Together, the 11 AAS and 57 AES have logged over 323,000 mishap-free flying hours; that's a whole lot of 6-leg days flying 30-minute legs.

The 1st AES, Pope AFB, N.C., provides tactical aeromedical evacuation and elements needed for airevac support. This very mobile unit has aeromedical evacuation control centers, mobile aeromedical staging facilities, and aeromedical evacuation liaison teams. In addition to flight nurses and med techs, the 1 AES has radio operators and vehicle maintenance people (they have around 30 assigned vehicles). The unit deploys in support of most major joint exercises. The 2 AES, Rhein-Main AB, Germany, provides patient airlift within Europe, the Middle East, and behind the "iron curtain" on C-9As; C-141s fly transoceanic routes. The 9 AES, Yokota AB, Japan, has airevac duty in the Pacific theater, again using C-9As for most missions in theater. Many C-141 overwater flights are augmented with AFRES medical crewmembers flying the Hickam to Travis leg.

As I left the 57 AES, I noticed a door labeled "Ace Flight Planning Service." Time for some investigative reporting. Behind the door is a flight planning room where three civilians working for Lt. Col. Biagio ("Bec") E. Cannistraci, 375 AAW/DOO, plan each stateside airevac mission. It was quiet, but the colonel assured me that from 1800 to 0200, the office would be busy putting together everything the pilots need to fly the next day's missions. "Without the flight planners," explained the colonel, "our crews wouldn't have crew day left after mission planning to make seven or eight required stops. The normal two hours allowed for crew mission planning and preflighting an aircraft won't work when you're flying seven legs per day. Using computers, the flight planners can work up an entire 7-leg mission in about 45 minutes. Active missions which are diverted are replanned with mission planning information passed to the pilots at the next station." With 42 missions during an average week, the folks at "Ace Flight Planning Service" work hard to keep airevac flying.

"Structure is the chief challenge to wing operations," stated Col. Ronald T. Sampson, 375 AAW Deputy Commander for Operations. "The wing is spread from Yokota to Rhein-Main and from the southern U.S. to the upper midwest. Add three totally separate types of missions flying five types of aircraft, and the geographic separation makes standardization and communication with crews difficult. Another challenge is the logistics headache of keeping the small fleet of flight check aircraft operational; it impacts training and the ability to maintain currency and proficiency in performing a very demanding mission. Conversion to new aircraft also adds an element of risk as we will have some people qualified in two systems during transition.

"With the C-29 aircraft," continued Colonel Sampson, "the flight check mission will change significantly. Their TDY commitments will increase as flight checks begin operating from a single base. OSA just picked up a new deployment commitment as well; the wing deployed a C-21 to support Southern Command's staff in Central and South America. Each OSA unit will rotate crews to support the mission, plus it's good experience for our crew force. Another area which will help us provide a better product to the larger weapon system is Combat Aircrew Training (CAT)—C-12s and C-21s will be getting into the low-level arena."

Mission tasking for 375 AAW units is unique. Each mission type is tasked by a different source. MAC's Operational Support Airlift Division (MAC/DOOF) takes validated airlift requests, works the routing, and tasks an OSA unit to fly the mission. Flight

checks of navigational aids are tasked by AFCC units through the Airlift Communication Division which deconflicts and prioritizes requests before passing them to 375 AAW/DOM, Flight Inspection Management. Airevac mission requirements flow from the Patient Airlift Center to Wing Current Operations, where the flight planners take over. Airevacs are the closest thing to channel missions for the 375th since major DOD medical centers define either the origin or destination of patients airevaced.

Now for the units receiving their missions from MAC/DOOF: the 1400 MAS, 1401 MAS, 1402 MAS, and their detachments; the OSA units flying C-12Fs and C-21As. The 1400 MAS at sunny Norton AFB, Calif.; has detachments at McClellan AFB, Calif.; Randolph AFB, Tex.; and Nellis AFB, Nev. In the shadow of the Capitol, the 1402 MAS is at Andrews AFB, Md.; with detachments at Langley AFB, Va.; Maxwell AFB, Ala.; and Eglin AFB, Fla. Back here at Scott, is the 1401 MAS with dets at Offutt AFB, Neb.; Wright-Patterson AFB, Ohio; Barksdale AFB, La.; and Peterson AFB, Col. Most OSA units fly the C-21 Learjet, while select locations fly the C-12F as well (Norton, Andrews, and Wright-Patterson). The exception is Nellis which flies only the C-12F.

The 1375th Flying Training Squadron, commanded by Lt. Col. Gerald K. (Keith) Fennell, trains 400 C-9, C-12F, and C-21 pilots a year. Academic and simulator training for OSA pilots is taught by contractors, and C-9 students attend simulator training at a contractor facility. Colonel Fennell says, "Our challenge is competing in the Scott area for approaches with four other squadrons and transient missions. The aluminium overcast from traffic into St. Louis makes for a tight traffic pattern sometimes." After initial training, some pilots return for IP training in the C-12 and C-21, or IP lead-in school.

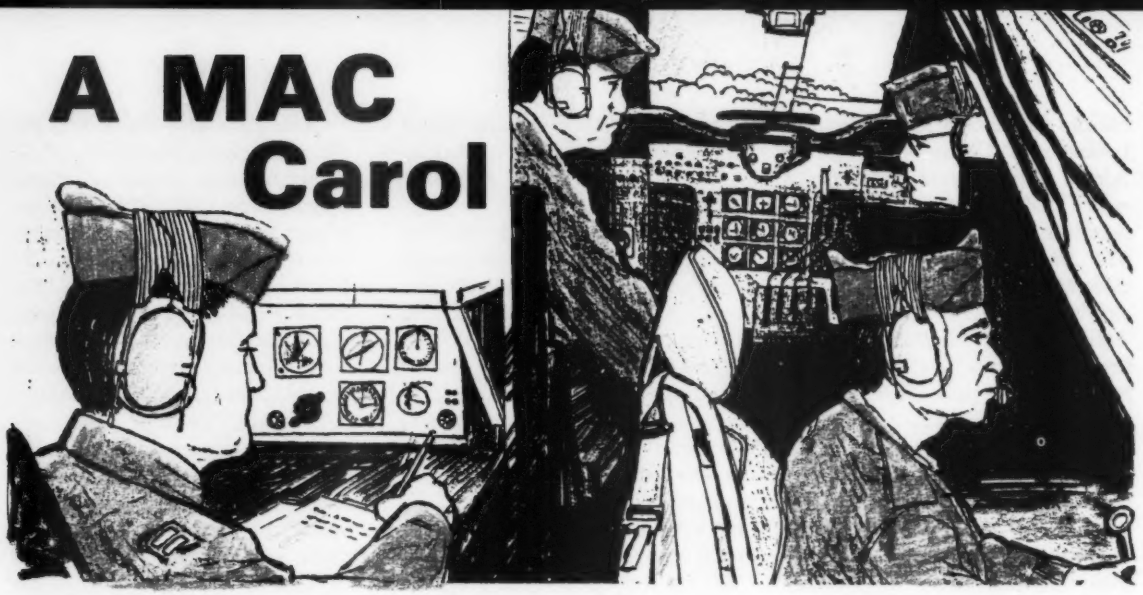
OSA units build the experience of UPT graduates in a low cost per flying hour aircraft. According to Lt. Col. Robert E. Dorough, 1401 MAS/CC, "OSA is a great way to season and build pilotage skills for new pilots. Each mission normally has four to five legs and transits both civil and military airfields. There are lots of ups and downs, and a lot of talking with ATC. The OSA goal is to send well-rounded pilots to other MAC and SAC weapon systems. Airlift provided is a byproduct of the seasoning and contracted flying hours." Both C-12 and C-21 aircraft are full CLS (contract logistics support); the contractor provides parts and FAA licensed A&P mechanics. The CLS contractors, Gates Learjet Aircraft Services Corporation for the C-21 and Beech Aerospace Services, Inc. for the C-12, have very skilled and motivated people. Logistic reliability for both aircraft is above 99 percent.

CLS provides means for maintaining most wing aircraft. According to Col. Charles E. Malcom, 375 AAW/MA, "It's a big challenge educating people on how CLS works and what the limits are. The contractor's perceptions may not match Air Force goals and objectives. We're learning to write contracts that cover our maintenance goals." Full CLS is provided on C-12F and C-21A aircraft; C-9s have partial CLS—a contractor operates the parts supply; 375 CAMS and 932 CAMS (AFRES) provide the wrench benders. When the C-29 arrives, it too will be a full CLS aircraft. Colonel Malcom concluded by saying, "Our maintenance folks are very proud of the 375 AAW safety record and their contribution to that record."

One stop left—the 1467th Facility Checking Squadron (FCS), known by most people as "Flight Check." The 1467 FCS, previously part of Air Force Communication Command, became a 375 AAW unit on 1 October 1987. The unit has one detachment at Rhein-Main AB, Germany. Flight check aircraft inspect and certify ground navigational aids used for instrument flying. "Most inspections are completed low-level in the traffic pattern, opposite traffic, and across the flow of traffic, that's why flight checkers always brief to check 'flight check final'," related Lt. Col. James P. Eggers, 1467 FCS commander. "We have the most challenging 375 AAW mission; we're always flying at the extremes of approach procedures to ensure safety of the approach and adequacy of navigation aids. Airborne flight checks find anomalies affecting radio signals not readily apparent when navigation aids and approaches are planned. Since we are flying at the extremes of the approaches, our flight checks must be made in clear weather conditions to track the aircraft with a theodolite. When the C-29 arrives and replaces C-140s and CT-39s, we'll be able to conduct some inspections in IMC and during evening hours." What gets checked was explained by Lt.Col. Edward H. Hirshouer, 1467 FCS/DO, "During annual inspections of an instrument approach, the check includes all navigation aids used to fly the approach plus runway markings, all lights (appraoch, threshold, and VASI alignment), ground nav aid check points, marker beacons, and radio frequencies; everything a crew will come into contact with." The motto on their patch says it—'For safer skies.'

It's a big challenge being the only Aeromedical Airlift Wing in the world, but the folks of the 375th are up to that challenge.☆

A MAC Carol



By Capt. James H. Ehlers
50 MAS
September 1969

With only an hour to go 'til landing, Maj. Ebenezer Scrounge, MAC C-124 aircraft commander, was feeling especially mellow and relaxed. He leaned back against his reclined seat and idly picked at his teeth with the point of his black, U.S. Government ball-point pen. It had been a long day, but Major Scrounge had tempered the boredom and frustrations of the flight by making sure he slept at least half of each leg. This meant that Lt. Bob Scratchit, copilot, ended up spending three-fourths of the time in the seat, but that was darn good experience for him. He should have been in MATS. These young kids don't have the stamina of a ten-year-old, thought Scrounge. The quality, or rather the lack of quality, of the younger officers in his squadron was Major Scrounge's favorite topic and he was often heard, at great length, on that subject during HAPPY HOUR at the club. He was as sure of their weaknesses and lack of judgment as he was of his own hard-earned superiority.

Suddenly his reverie was interrupted by a voice over the interphone. "Major, do you have a visual on any weather ahead? I've got a target on radar, but can't tell how bad it is. This scope is spoking so bad, it's practically useless."

Major Scrounge tried unsuccessfully to stifle a feeling of irritation over being disturbed just when he was getting comfortable. He leaned forward and peered through the windshield and shook his head in quiet disapproval. "It's just a patch of ocean cu" was his curt rejoiner. "I haven't seen a navigator yet who could use that TV tube of yours worth a darn. You seem to be worse than most."

There were a couple of clicks over the interphone as if someone was going to transmit, but no words were forthcoming.

Five minutes later the plane lost whatever resemblance, if any, it ever had to a graceful bird in flight as it assumed the terrifying aspects of a runaway roller coaster. The "patch of ocean cu" had become a white, formless terror that pulled and pushed from every direction. It took the combined efforts of both pilots and the prayers of all the crew to keep the wings on until the plane broke out into the blue sky.

"Pilot, nav. You're a thousand feet off your altitude and I need a turn to 250 degrees."

"If I'd had some decent help," Ebenezer said, glancing over at his shaken copilot with ill-disguised scorn, "and some better advice from a certain navigator, we would have missed that interesting, but thoroughly unenjoyable experience."

The rest of the flight was even more silent than normal with everyone taking care to say little more than absolutely necessary. The landing at Kadena was firmer than usual which only deepened the wrinkles on Major Scrounge's forehead and added to the glow in Lieutenant Scratchit's eyes.

Later at the Billeting Office, the navigator, Capt. Tim, ventured a conciliatory effort.

"Major, why don't you meet us at the bar after you get cleaned up? We can have a quick one and then go to Koza and have a Mongolian barbecue."

Ebenezer quickly looked up from the billeting card he was filling out, in disbelief. "You might be better off spending your time reading the Dash One on how to operate a radar set, Captain. Although, if I couldn't navigate any better than you, I'd turn to drink myself."

Captain Tim took a step forward, paused, then turned, picking up his beer from the counter and walking out to the crew bus. Major Scrounge waited for the copilot and then followed him on board.

After being dropped off at his BOQ, Major Scrounge took a shower, put on some casual clothes and poured himself a cold drink. As he propped himself against the headboard of his Hollywood bed, he realized that, in spite of the sleep he had gotten in the airplane, he was very, very tired. Just as his eyes were closing he heard a noise from the corner of the room

where the easy chair was located. As he glanced over, his heart began to pound and his eyes widened in disbelief. There, sitting with one leg draped over the arm of the chair, was a strange character dressed in a ragged, torn, and ancient uniform. There was a long, dirty white scarf around his neck and he wore a stained military tunic with brown leather riding boots that were scuffed and scratched. The bottom of the boot visible to Major Scrounge showed evidence of great wear with two large holes worn through the leather.

"Who the hell are you?" croaked the major."

"I am Flight Officer Morbid," the unwanted visitor replied in a strange hollow voice. "I was the first Air Force officer to die needlessly in an aircraft accident caused by carelessness. I am doomed to haunt the earth until I can save one hundred lost souls like myself from the same fate. I am here in hopes that you can be my 85th."

"Unsafe! Careless!" answered Major Scrounge. "I'm one of the best pilots in my squadron, I . . . ."

His voice was stilled by a wave of the phantom's hand. The spirit continued, "You will be visited by three spirits; the ghost of safety past, the ghost of safety present, and the ghost of safety future. They are your only hope. Heed them! Heed them!"

With this ghastly warning, the figure on the chair grew dimmer until it faded and was gone. Ebenezer shook his head violently and rubbed at his eyes. With his name, he had naturally been the butt of countless jokes about Charles Dickens' "Christmas Carol," but this was no joke. This was real and frightening. Suddenly he felt a hand on his shoulder and reluctantly turned his head.

The man standing there could have passed for a fatherly, compassionate chaplain. He had the same look of interest; the same warmth in his tone, as he said, "Come, Ebenezer, my friend, your past is calling to us."

A haze seemed to settle over them and, in the distance, Major Scrounge could see, as in a tableau, two figures sitting in the cockpit of an old C-54. With a start, he realized that the aircraft wasn't old at all. The radios were clean, the instruments shiny and the unblemished yoke did not show the scars from thousands of sweaty hands. Even the cushions were fresh and the stuffing appeared firm.

"That's Captain Barnes," he shouted. "He was my first instructor-pilot in MATS. I must have flown three hundred hours with him the first few months after TTU. But who's that stupid looking lieutenant with the pimple on his nose? My God, it's me! But look at him, he's trying to hand fly, overcontrolling all over the place. I remember now. Captain Barnes used to make me practice all the time. He was a wonderful flier and friend. He had all the patience in the world. There wasn't a man on the crew that didn't respect and admire . . . ." His voice trailed off and he glanced over at the ghost of safety past with an embarrassed look of self-reproach. The spirit only smiled with understanding and nodded its head ever so slightly.

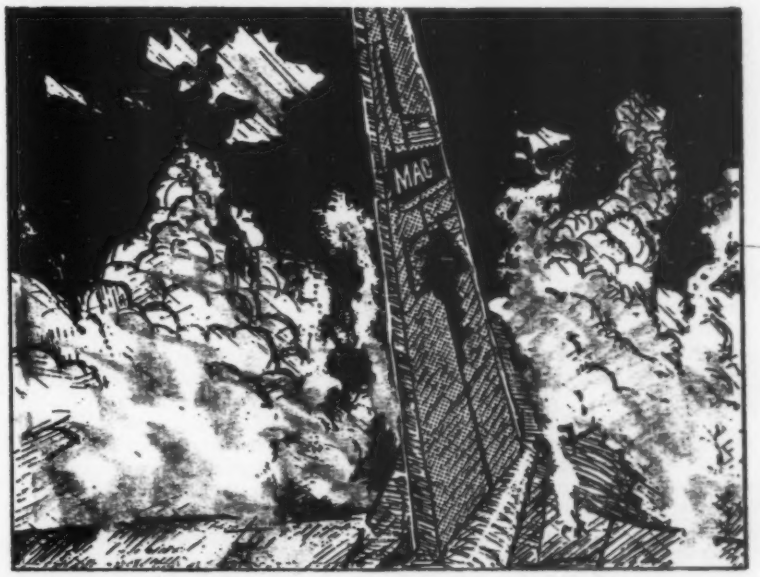
Then the mist cleared and Major Scrounge found himself standing in his bathroom, staring at his reflection in the mirror. He saw clearly, for the first time, the tight wrinkles at the corner of each eye and the definite downward curve of his mouth, giving his face a look of eternal disapproval. With no warning or sound, a face appeared over his shoulder. Without turning Major Scrounge said, "Safety present, I presume? Well, do your worst. I'm ready."

This time the haze was no surprise, but the effect of isolation was still there. The scene they were to observe became clear and Ebenezer found himself staring at a table in what he recognized as the main bar of the Kadena Club. Seated there were his copilot and navigator. Lieutenant Scratchit had just drained his glass. "That old slob," he was saying with a slur in his voice. "Keeps me up front until my bladder almost bursts and then acts like he's doing a royal favor to relieve me for ten minutes. He must think he's the only one who ever flew an airplane. I've never been criticized or harassed so much in all my life."

"Ah, Bob, it's only for three more days. We can put up with it that much longer."

"I don't care if it's three more hours! I didn't go to pilot training to end up a lackey to a man like that. If I wasn't sure before, I am now. They've got me for another year and a half, but after that I'm getting out. I'll bet civilian airlines don't fly like this."

Again the scene faded and the mist cleared. This time Major Scrounge found himself sitting on the edge of the bed. He knew what was coming next and felt a chill in his stomach. A solemn, haunting voice called to him. He looked down toward the foot of the bed where a tall, thin figure stood. He was dressed in a coal-black flight suit with black zippers and, instead of a squadron patch, a black armband around his sleeve. He wore a black baseball cap and black neck scarf, and the shadow from the bill hid his face. Ebenezer looked at this apparition and knew fear at its worst. The spirit beckoned with a motion of its black, leather-gloved hand. Major Scrounge stood and followed it towards the wall of the room, as though mesmerized.



As he approached it, the wall disappeared into smoke and he found himself in the middle of a large, open field. The sky was heavy with clouds and rain. An acrid odor of smoke filled the air, burning his eyes and causing him to cough. Through the heavy rain he could see the mute evidence of an airplane crash. From the large piece of vertical stabilizer that lay scorched and burned in the grass, he could tell that it was the remains of a C-124. Instinctively, he ran forward to look for survivors, to give any help he could. As he ran, he suddenly knew what he would find. The pieces were scattered over a wide area and there was no single crater. From the swath cut through the trees and tall grass, it appeared the plane had been in a gradual descent rather than a dive when it hit. His head was throbbing and his lungs ached as he came near the larger portions of the plane. Out of the corner of his eye he saw a familiar black shape and he stopped abruptly and went over to examine it. It was the still smoldering remains of an expensive, hand-tooled, pilot's briefcase. The first time he had seen one like it was when Lieutenant Scratchit had bought one at Mactan earlier that trip. He kicked it over with his foot and saw the name on the flap. SCRATCHIT!

Ebenezer looked over at the spirit who was standing silently beside him. His lips tried to form the words, ask the question, but nothing came out. The specter merely raised his arm as if to point and Major Scrounge followed the gesture with his eyes. Draped against a tree was a hang-up bag, miraculously unharmed. Ebenezer could make out the applique of a large C-124 on the front and the embroidered name at the top. It read "Captain T. Tim, Navigator." With growing horror, Major Scrounge again sought the gaze of the ghost of safety future.

This time the spirit led him away from the wreckage to a small ditch. As they approached the depression, Ebenezer could make out a piece of the crashed airplane lying in the ditch. Nearing, he felt a sickness spread as he identified it as a seat, a seat with a body still strapped in. He rebelled against the will of the shape beside him as he screamed, "I won't look! I can't look!"

The spirit began to speak in an empty, dry, monotone. "They were cleared to descend to three thousand feet. The copilot erred in the read back and the pilot started to give him an extensive lecture on proper ATC procedures. This lecture was then expanded to cover certain other discrepancies noted by the aircraft commander. As they carried on this one-way discussion, the airplane came down too, and passed through the three-thousand foot level. The young navigator was too busy looking for weather on the radar to notice. He had a lesson to teach the pilot. He was going to show him just who was and who wasn't good at scope interpretation. He was just about to warn the pilot of a large bright return immediately in front of them when he glanced out of the window and saw the ground. The pilot . . . ."

"Stop, spirit, please stop," cried Ebenezer. "I can't stand it anymore!"

The ghost stood silent.

"I don't want this to happen. What can I do? How can I change? Tell me spirit, tell me!" He clutched at the specter only to find himself in bed, entangled in his bed clothes. The sun was streaming in through the slats of the venetian blinds. He glanced around, half afraid of what he would see. He was alone. The light in his bathroom was still on and the clothes he had left on the chair were now on the floor in a rumpled heap. He got up, walked into the bathroom and stood in front of the mirror, staring at his reflection. After a few minutes, he turned and walked back into the room and began to get ready for the alert.

Later at Base Operations, Lieutenant Scratchit and Captain Tim were amazed at the change. Gone was the sarcasm. Absent was the air of superiority. Lieutenant Scratchit made an error on the ICAO flight plan and Major Scrounge corrected it and told a slightly funny story of the first ICAO flight plan he had ever filled out and how it was so messed up it took them three hours to get a clearance filed at Dhahran. At the weather desk there were none of the usual caustic remarks about the doubtful talents of weather forecasters in general, and those at that station in particular, which Major Scrounge had been prone to make at every prior stop. When they got to the airplane, the major was the first one to grab a bag and personally went inside to help in the drill. The rest of the mission was equally different and delightful. Fifteen years of MAC experience was now being used to help Lieutenant Scratchit learn without making him miserable. Ebenezer made a special point to split the legs down the middle and even gave Lieutenant Scratchit the landing back at home station. The copilot and navigator could not pass each other without raised eyebrows and an incredulous shrug of their shoulders. During the rest of the mission, problems were discussed by the whole crew, when practical, and each crewmember was treated with respect and consideration.

When they got home and the story of the transformation spread, there was much skepticism. Nevertheless, from that trip on, there was one thing said about Major Scrounge. If anyone knew how to run a crew, he did!

Flying-Hour Milestones

15,000

702 MAS
Lt. Col. Felix Czech

10,000

109 TAS
MSgt. Marcus J. Haag

732 MAS
CMSgt. Harold J. Greenlee

7,500

41 RWRW
SMSgt. Stephen Ciechanowski

57 MAS
MSgt. Alfonso Sullivan
TSgt. William H. Weeper, Jr.

86 MAS
MSgt. Antonio Ovalle

106 ARRG
Lt. Col. Gerald B. Olander

109 TAS
MSgt. Dwight R. Hackbarth

130 TAS
Lt. Col. William E. Evans
Lt. Col. William D. Peters, Jr.

337 MAS
Maj. Jay F. Lacklen

435 TAW
MSgt. Johnny B. Harp

772 TAS
Lt. Col. Steven M. Nutter
SSgt. Quentin G. Anderson

907 TAG
Lt. Col. Louis Heri

911 TAG
Lt. Col. John E. Hocksenberger

5,000

11 AAS
Lt. Col. Donald W. Milam

14 MAS
Lt. Col. Jonathan L. Hicks
Lt. Col. Kenneth B. Smith
MSgt. Charles J. Avery
MSgt. John A. Smith
TSgt. Stephen C. Coleman

16 TATS
MSgt. Joseph F. Dawson

20 SOS
Lt. Col. William J. Barnes

Det 6, 23 AF
Maj. Paul C. Hooper
TSgt. William L. Thompson

41 RWRW
TSgt. Kenneth W. Miesner

50 TAS
Lt. Col. Ronald B. Turney
Maj. Philip M. Omeghan

53 MAS
CMSgt. John R. Burkhardt, Jr.
CMSgt. Daniel L. Perkins
SMSgt. Robert K. Kanakaole
MSgt. John W. Arseneault
MSgt. Jerry N. Beall
MSgt. Galen E. Guenther
MSgt. Paul Krachtus
MSgt. Richard A. Satryb
MSgt. John P. Stahl
MSgt. Terry O. Stapp
MSgt. William C. Stevens, Jr.
TSgt. Michael C. English

57 MAS
TSgt. Ora L. Conlon
TSgt. John M. Wiseley

75 MAS
Lt. Col. James H. Lea, Jr.
Lt. Col. DeLloyd J. Jacobson
Maj. Richard L. Martenson
MSgt. J. D. Floyd

86 MAS
TSgt. David E. Hedrick
TSgt. Thomas F. Morrison

106 ARRG
Col. John H. Fenimore, V.
Col. David B. Hill, Jr.
Maj. Robert J. Saudo
Maj. Charles R. Stueve
SMSgt. Konrad Goeldner
SMSgt. Robert A. Herreros
MSgt. Juan Benitez

130 TAS
Lt. Col. Darrell W. Preece

143 TAS
TSgt. Larry C. Muniec

302 TAW
SMSgt. Merkle A. Bailey

337 MAS
Lt. Col. John J. Gallagher
Lt. Col. John E. Riley, Jr.
MSgt. Bruce W. Szepelak

435 TAW
Maj Charles L. Morton

772 TAS
Maj. Richard B. Keller
Capt. Roger L. Hollowell
Capt. Richard J. Beitel
SSgt. Raymond Guerrero

730 MAS
MSgt. Steven D. Ferry

731 TAS/CC
Lt. Col. Douglas A. Ohlde

910 TAG
Maj. William W. Sassaman, Jr.
Capt. Leslie R. Anzjon
MSgt. Joseph D. Pitney

932 AAG
Lt. Col. Norma N. Acosta

2,500

1 AES
TSgt. John C. Rittenbury

1 MAPS
SSgt. Duane Hutchinson

3 MAS
Maj. Curtis L. Morris
Capt. Fred Austin
Capt. Darrell W. Brandon
Capt. Michael F. Ryckeley
Capt. Karen M. Torres
SMSgt. Herbert E. Byers
MSgt. Rockey A. Gilreath
MSgt. John J. Lavacca
TSgt. Joseph E. Andrepont, II.
SSgt. Bruce C. Slody

9 MAS
Lt. Col. Geoffrey T. Bishop
Lt. Col. Peter H. Clark
Lt. Col. Stephen Dabrowski
Lt. Col. Richard J. McCourt
Lt. Col. Lyle T. Nelson
Maj. Richard P. Heffner
Maj. Richard J. Moken
Maj. Randy E. Morris
Maj. Kevin O'Shaughnessy
Maj. John C. Slater
Maj. Charles T. Smission
Maj. Raymond Wawzeniak
Maj. Michael A. Williams
Capt. Kenneth R. Carson
Capt. Thomas F. Force
Capt. Michael R. Fox
Capt. Gregory Gilbert
Capt. Richard P. Hagauer
Capt. Phillip D. Mast
MSgt. Nicholas Amalfitano
TSgt. John M. Miller
TSgt. Phillip E. Peterman
SSgt. Charles C. Davidson
SSgt. Robert J. Hicks
SSgt. John F. Masur
SSgt. John Nason
SSgt. Walter N. Taillon

14 MAS
Maj. Gregory Hergesell
Capt. Richard J. Richardson
SSgt. Craig S. Humphrey
SSgt. Donald M. Hallwachs

20 MAS
Lt. Col. Ronald W. Tubbs
SSgt. Timothy W. Patchell

21 AF/DOV
Capt. Alain M. Griffin

Det 6, 23 AF
Maj. Michael L. Neil
Capt. Steven F. Bross
Capt. David M. Roetzel
Capt. Carl D. Sampson
TSgt. James A. Ray
SSgt. Charles D. Bishop

31 ARRS
SSgt. Gary J. Hauptli

33 ARRS
TSgt. Philip T. Pulver

34 TATG/CC
Col. Alvin C. Schweizer, II.

Det 24, 37 ARRS
Maj. Herbert R. Smith

41 MAS
SSgt. Terry W. Shaw

52 MAS
Capt. William M. Allen
Capt. Ray R. Phillips

57 AES
Capt. Danny L. Moore
SSgt. Eric J. Estabrook
SSgt. Earl J. Liverpool
SSgt. Douglas E. Truhart

57 MAS
Maj. Richard L. Hahn
Capt. Keith R. Turner

1,000

Det 2, 37 ARRS
Capt. Ivan D. Redford
1st Lt. Daniel Martinez
SMSgt. Philip E. Sutherland

Det 8, 37 ARRS
Capt. Christopher R. Hannon
1st Lt. Ricky A. Ragland

56 ARRS
Capt. David A. Fennel

106 ARRG
Maj. Walter Donovan
Maj. Frederick Meyer
Capt. Joseph P. Annello
Capt. Michael F. Canders
Capt. Edward T. Heister
Capt. David C. Ruvola
Capt. Gregg M. Scott

310 MAS
Lt. Col. Steven E. Harrington
Lt. Col. Gregory K. Swenson

3 MAS
Capt. William D. Nutt

Ranks and units are those at time of award.

Last Flight of the Memphis

By LCdr. J. J. Horvath
Adapted From *Approach, July 1989*

"Smoking Passenger Causes C-9 Mishap"— Does this sound like an impossible headline? Well, it's not! Investigation of a fatal Air Canada C-9 mishap indicated that a fire started in the aft lavatory by a passenger smoking and quickly spread through the cabin. Military aircraft are not immune to this hazard. In fact, recent hazard reports document several instances where crewmembers discovered cigarette butts in the lavatory's wastepaper bin. Also, smoke detectors were found to have been deliberately disconnected. MAC is deadly serious about putting an end to this problem. A recommendation that future violators be prosecuted to the fullest extent of UCMJ (Uniform Code of Military Justice) and federal law is under consideration. Under the UCMJ, this may result in a dishonorable discharge, forfeiture of all pay and allowances, and confinement for two years. Under federal law, this may result in a $2,000 fine for each violation. The following article is fictitious; however, it illustrates what can happen. By adhering to regulations and federal statues, "Last Flight of the Memphis" will not become an actual headline.

"The City of Memphis," a C-9B, began its takeoff roll after a 70-minute ground delay. The pilot had discovered a sluggish nosewheel steering system as the aircraft began to taxi to the active runway earlier. Return to the transient line, troubleshooting and system servicing took 50 minutes. The remainder of the delay involved waiting for takeoff clearance through the flight center. Passengers remained on board the entire time because of the uncertainty of repair time.

Takeoff and climbout on this 90-minute flight could not have been smoother. Perhaps a little of the delay could be made up en route if winds were lighter than predicted. The pilot extinguished the fasten-seatbelt light a few thousand feet before level off. The no-smoking light remained illuminated. Arrival at FL 350

went unnoticed by the flight attendants busy serving coffee, sodas, and snacks to passengers.

In seat 20D was a 22-year-old seaman en route to Tech school. Although he'd only been in the Navy for ten months, military air travel was not new to him. The young sailor hated flying though, because he usually couldn't smoke. On this particular flight, two hours had gone by since his last smoke. He'd never gone that long between cigarettes for as long as he could remember. His craving intensified as he concentrated on it until the need overpowered reason. He went to the bathroom, locked the door, removed the battery from the smoke alarm and lit a cigarette.

It took a full three minutes to finish the cigarette. Satisfied, he crushed the end in the sink, threw the butt into the wastepaper bin, and rinsed the sink of ash. As he was waiting for the smoke and smell to clear from the room, someone knocked on the door. Quickly, he flushed the toilet, waved his arms to further dissipate the smoke, replaced the smoke alarm cover, and opened the door. To his relief, he saw an airman standing before him instead of a curious flight crewman. Returning to his seat, the seaman felt comfortable again. He then remembered that the smoke alarm battery was still in his pocket.

One hour from destination, "Memphis" encountered a front that produced mild turbulence and caused the pilot to turn on the fasten-seatbelt light. Everyone, including crewmembers, returned to their seats.

The first sign of trouble was the faint smell of burning paper in the aft part of the cabin. The smoldering cigarette had spread its ember to wastepaper in the bin and within moments had burst into flame. By the time the volume of smoke and odor had built to the level where passengers became concerned, the intensity of the fire had ignited the fiberglass and wood structure, producing an acrid, black smoke.

The first crewman at the scene opened the door and was immediately overwhelmed by smoke. He stumbled back from the rapidly expanding fire. Panic set in as those passengers in the aft section unstrapped and tried to move forward. Their movements hindered efforts of other crewmembers who were trying to move aft with portable fire extinguishers.

The fire continued to spread. It quickly jumped to the main cabin, igniting the fuselage covering, fiberglass overhead compartments, and seat cushions. Although the crew was able to finally apply CO2 and Halon to the flames, it wasn't enough. The smoke and heat drove them away from the restroom.

In the cockpit, the pilot and copilot donned oxygen/smoke goggles as a precaution. They declared an emergency, and Center directed the C-9 to a municipal field 50 miles northwest. The pilot began a rapid descent to 9,000 feet while the copilot set the cabin pressure to 10,000 feet in an effort to remove the cabin smoke.

The crew chief expended the last available extinguishing agent as the aircraft approached 28 miles from touchdown. It was only enough to force the fire to retreat to the last row of seats. The remaining flight crewmembers were working feverishly in the cargo area to resuscitate five passengers who had fallen victim to smoke inhalation. Most passengers were now seated in the forward rows immediately behind the cargo. The pilot chose not to activate the emergency oxygen system in the cabin for fear of feeding the fire from the lines that ran to the aft section.

On touchdown, the fire had claimed four rows of seats on both sides of the aisle and had burned a four-inch hole through the top of the fuselage. The torch effect was starting to grow as outside air rushed in to fan the flames. As the aircraft rolled to a stop, the passengers had already removed the overwing exit doors, and the crew chief had opened the forward door. Evacuation of the aircraft was swift, but there were injuries. Four passengers never made it; they had already died of smoke inhalation.

Crash and rescue personnel arrived to find smoke pouring from exit doors and surviving crew and passengers out of the aircraft and on the side of the runway. It took four minutes to douse the fire and remove bodies.

Investigators never established who was responsible. The 22-year-old died of smoke inhalation. The final toll was four dead, seven injured with broken bones and cuts from evacuation, and a C-9 that will never fly again. *All for a cigarette.*

The Ice Man Cometh!

The realities of publishing require this quiz be written during the "Dog Days" of August. Those of you who have not had the opportunity to spend any time in the converted corn fields of southwestern Illinois may not be aware that most summers at Scott are "Africa Hot" with a humidity reading equal to or greater than the Amazon river basin. So, with fond memories of days spent downhill skiing, and nights lost chasing snow bunnies, we have resurrected our nearly annual cold weather quiz for your entertainment and enlightenment.

Source documents are AFM 51-12, Volumes I and II. The correct answers can be found on page 27.

1. Some of the hazards associated with ice formation on aircraft are:
   a. Decreased lift, increased vibration.
   b. Increased weight, drag, and stall speed.
   c. Increased power requirements, potential FOD.
   d. All the above.

2. Aircraft icing can be classified into two main groups. They are:
   a. Block and cube.
   b. Induction and structural.
   c. Mixed and bagged.
   d. Clear and rime.

3. Serious icing is rare in clouds with temperatures below:
   a. 0 degrees C.
   b. -10 degrees C.
   c. -20 degrees C.
   d. -40 degrees C.

4. Aircraft structural icing consists of the following basic types:
   a. Clear.
   b. Rime.
   c. Frost.
   d. Mixed, clear and rime.
   e. All the above.

5. The type of ice that forms is dependent upon:
   a. Water-droplet size.
   b. Temperature.
   c. Air density.
   d. Dew point.
   e. Both a and b.

6. The most serious form of icing is _____ because it adheres firmly to the aircraft.
   a. Rime.
   b. Frost
   c. Clear.
   d. All the above.

7. Ice deposits of only one-half inch on the leading edge of your airfoil can reduce your lifting power as much as:
   a. 20 percent.
   b. 30 percent.
   c. 40 percent.
   d. 50 percent.

8. Induction icing most often affects:
   a. Power plant air intake.
   b. Fuel system.
   c. Pitot tube.
   d. Windshield.

9. Clear icing is mostly associated with a temperature range of:
   a. 0 to -10 degress C.
   b. -10 degrees C to -15 degrees C.
   c. -15 degrees C to -20 degrees C.
   d. Below -20 degrees C.

10. Canada and Alaska have their most severe icing conditions during:
   a. Spring.
   b. Fall.
   c. Winter.
   d. Both a and b.

11. Icing is most often encountered when flying over:
   a. Large bodies of water.
   b. Flatlands.
   c. Mountains.
   d. Desert.

12. Which of the following procedures will help reduce the effects of icing:
   a. Remove all ice and snow from the aircraft before takeoff.
   b. Avoid flying in clouds when outside air temperature is between 0 degrees C and -20 degrees C.
   c. Use all available anti-ice/deice equipment.
   d. All the above.

The Answers

1. d 2. b 3. c 4. c 5. c 6. c 7. d 8. a
9. a 10. d 11. c 12. d

TRY IT, YOU MIGHT WIN IT! ! !

Editor, *The MAC Flyer*
MAC/IGFE
Scott AFB, IL 62225-5101

Dear Editors

For a couple of years now I've been trying to get up the nerve to enter the Flight Safety Writing Contest. Each time I get something down on paper, however, I tear it up and chuck it into the waste-basket. You see, I have very little confidence in my writing abilities. Sure, I have some good ideas—ones which I feel would be of value to other crewmembers, but I haven't sent them in because I know someone will make fun of my writing. I was lousy in English when I was in school. Maybe that's why I feel this way. It's tough when you know your writing is going to be criticized. I'll bet a lot of other potential authors feel the same way since you folks up at *The MAC Flyer* are such literary experts.

It took a lot of nerve for me to write this. Maybe someday I'll get up the nerve to enter the contest.

Do you have any advice for folks like me?

Sincerely

Captain Hesitant
Squadron Crewmember

Dear Captain Hesitant

Your apprehension is much like that of other crewmembers—some of whom have won previous contests. You feel you need a good many years of experience before you could possibly enter the Flight Safety Writing Contest. Well, it ain't so. We all should have paid closer attention in our English classes, but hindsight is always 20/20. A good, fresh idea is more important than how you write the article, although you should write it down as best you can. We have a full-time staff of editors (they claimed to have passed their English courses the first time) to check punctuation, spelling, and the like, so don't let that hold you up.

Sit down right now and pen your entry. Follow the rules below and you may just be on your way to a "win."

Let us hear from you. Who knows, you might even surprise your former English teacher. Good luck!

Cordially

The Staff
The MAC Flyer

TMF Feb 75

THE RULES

The 1990 MAC Flight Safety Writing Contest is conducted according to MACR 900-3 and these rules. Entries must be original, unpublished, contain an aviation safety/mishap prevention message, and be postmarked no later than 31 March 1990. Stories must be between approximately 1,000 and 3,000 words long (about 6 to 14 double-spaced typed pages). Poetry should average 75 to 100 lines. Manuscripts must be typed, double-spaced, and submitted in two copies. Identify entries by title only and attach a cover sheet indicating author's name, address, duty phone, unit and home address. Please include a brief biography.

The contest is open to all. Entries qualifying under the above rules earn their author a complimentary one-year subscription to *TMF*. However, desk sets and plaques may be awarded only to military members and civilian employees of the Department of the Air Force and Air Reserve Components. Other entries may be selected for Honorable Mention, Special Category.

Winning entries will be published in *TMF*. Submit to:

MAC Flight Safety Writing Contest, 1990
HQ MAC/IGFE
Scott AFB, Illinois 62225-5101

QUICKSTOPPERS

CELEBRATING 35 YEARS OF *TMF*: 1954 - 1989

HUSH, HUSH, DRY ENGINE.

(March 1982)

The Galaxy crew took off only to be greeted by unusual "rumblings" from nether regions of the plane. Seconds later, EPR and fuel flow on Number 3 engine began fluctuating. The crew put these two indications together and summarily shut down the suspect engine. Lo and behold, the flight engineer placed the A/R door switch in the "close" position and the rumblings ceased.

Now the crew began to suspect they might have shut down an okay engine. A restart was made, but the power wouldn't advance beyond idle, and the engine began to cough and sputter again. This time it was shut down for good.

To understand why this engine quit, we have to go back in time to before engine start. The fuel load was 60,000 pounds for the scheduled short hop. While the engineer continued other preflight duties, maintenance opened the fuel panel to work on a problem with the Number 3 extended-range-tank-indicator. As takeoff time approached, the decision was made to button up and press on, since the fuel tank wouldn't be required anyway. Can you guess what somebody forgot to do?

Right. The cannon plugs were not reconnected. This caused the A/R door indicator light to indicate closed even though the door was open, and the fuel transfer valves to remain open. With the Number 3 main tank boost pump on, the remaining fuel was transferred from the main tank to the other tanks on the right wing, while its fuel quantity indicator remained at its last position (approximately 8,000 pounds). When the tank started running dry, the engine's EPR and fuel flow fluctuated, leading the crew to shut it down.

The next time somebody works on your fuel panel, or any critical system after you've preflighted it, it might not be such a bad idea to make sure everything works after things are "buttoned up."

BUZZARD STRIKE

(April 1983)

The C-130 had just turned downwind on radar vectors for an ILS approach. After leveling at 2,000 ft, the pilot caught a glimpse of a large bird out the left swing window, followed by a loud thump! Number 1 engine RPM promptly decayed to 70 percent. After declaring an emergency and shutting down the errant engine, the crew landed the Herk safely.

Buzzard remains were found in the intake and throughout the Number 1 engine, causing extensive damage to the inlet guide vanes and the compressor section. The Herk's power plant, unfortunately, will require depot level repair—the buzzard was a total loss.

QUICKSTOPPERS

SLICKER THAN WHAT?

A Boeing 737, carrying a crew of 6 and 133 passengers, was landing during torrential rain and high winds at an international airport in Peru. The runway, already slick from the severe rainstorm, was made worse by clusters of fast-growing tropical mushrooms. (No fish story.)

After touchdown, the pilot lost directional control and the aircraft skidded violently, spun in circles, and departed the runway. The right main landing gear collapsed, the right underwing engine tore from its mountings, and a fire developed.

No one was injured during the landing sequence, but four passengers, who jumped to the ground instead of using the emergency chutes, were hurt. The fire was brought under control by emergency equipment, and the airport closed until the damaged aircraft could be recovered. Initial estimates placed mishap costs at $3 million in aircraft damage and loss of revenue during repairs . . . and you thought mushrooms were only affecting your waistline.

Adapted from *Flight Safety Digest, July '89*

EVASIVE MANEUVERS

A Boeing 727 en route to Boston at 10,500 feet narrowly missed colliding with a twin engine airplane about 10 miles southeast of Westchester County Airport when ATC erroneously cleared the 727 to climb into the path of the other aircraft.

The 727 was cleared to climb from 10,000 feet to 17,000 feet and instructed to turn from 020 degrees to an easterly heading. While passing 10,400 feet and turning through 027 degrees, the check Captain observed a light twin approaching, head on, at short range. The check Captain immediately took control and pushed forward on the control wheel. The 727, propelled by thrust and inertia, peaked out at 10,550 feet with .5763 negative Gs.

Information received indirectly from the twin indicates he saw the B-727 approaching while cruising VFR at 10,500 feet, and receiving VFR advisories from New York TRACON. The 727 was climbing toward him and he assumed the aircraft would level off before reaching his altitude. When it became obvious the 727 was not going to level off, and in fact was on a collision course, the pilot pulled up. ATC data indicates the twin climbed about 300 feet to 10,800 feet in its avoidance maneuver.

Thanks to the evasive maneuvers of both crews, the planes passed each other about 400 feet apart; not a comforting thought for anyone concerned.

After Deadlines

GENERAL JOHNSON ASSUMES COMMAND--Three members of the Joint Chiefs of Staff, outgoing and incoming Commanders in Chief of the U.S. Transportation Command and Military Airlift Command, and a retiring Reserve major general, render a salute to the flag during the singing of the national anthem. The generals were present at the change of command and retirement ceremonies held on the Scott AFB, Ill., flightline, 22 September 1989. From left to right: Admiral William J. Crowe; General Larry D. Welch; Army General Carl E. Vuono; General Duane H. Cassidy; General Hansford T. Johnson, and Major General Charles R. Parrott. (USAF photo by Amn Mike Eyer) (MAC News Service)

GENERAL ROBERT "DUTCH" HUYSER AWARDS RECIPIENTS SELECTED--The Airlift Association has named five MAC people as the Outstanding MAC Aircrew Members of the year. Selected were Capt. Michael W. Hodge, pilot, 55 SOS; Capt. Jeffrey A. Hoffer, navigator; 40 TAS; CMSgt. David H. Frazier, flight engineer; 167 TAG; MSgt. Paul G. Watson, loadmaster, 9 MAS; and MSgt. Steven W. Hicks, aerial gunner, 1 SOW. This is the first award presentation and the Association plans to sponsor the program annually.

☆ U.S. Government Printing Office: 1989--754-014/12

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